POWER LEVEL - 042%. ON 12/28/89, AT APPROXIMATELY 1529, AN AUTOMATIC REACTOR TRIP AND ACTUATION OF THE EMERGENCY FEEDWATER SYSTEM (EFW) OCCURRED AS A RESULT OF THE LOSS OF ALL MAIN FEEDWATER FLOW WHICH RESULTED FROM THE INADVERTENT TRIPPING OF A MAIN FEEDWATER PUMP (MFP). EARLIER IN THE DAY, THE 'A' MFP HAD TRIPPED ON OVERSPEED DUE TO A MALFUNCTION IN THE PUMP CONTROL CIRCUITRY. ANOTHER MALFUNCTION IN THE TRIP OIL SYSTEM HAD CAUSED AN 11 SECOND DELAY IN THE SENSING OF THE TRIP BY THE INTEGRATED CONTROL SYSTEM (ICS). AT THE TIME OF THE EVENT, TROUBLESHOOTING WAS IN PROGRESS TO DETERMINE THE CAUSE OF THE DELAY. OPERATIONS PERSONNEL HAD LATCHED, AND THEN TRIPPED THE 'A' MFP WITH NO OBSERVED DELAY IN TRIP INDICATION BY THE ICS. DURING THE PERFORMANCE OF A SECOND TEST, AN OPERATOR MISTAKENLY TRIPPED THE OPERATING MFP ('B'). THIS ACTION RESULTED IN A TOTAL LOSS OF FEEDWATER FLOW WHICH INITIATED AN AUTOMATIC REACTOR TRIP AND ACTUATION OF THE EFW SYSTEM. THE ENGINEERED SAFETY FEATURES ACTUATED, AS DESIGNED, AND PRIMARY AND SECONDARY PARAMETERS WERE MAINTAINED WITHIN ACCEPTABLE LIMITS. THE ROOT CAUSE OF THIS EVENT WAS DETERMINED TO BE PERSONNEL ERROR. DISCIPLINARY ACTION WAS TAKEN AGAINST THE OPERATOR WHO TRIPPED THE WRONG MFP. ADDITIONAL ACTIONS ARE ALSO BEING TAKEN TO MINIMIZE THE OCCURRENCE OF PERSONNEL ERRORS.